

# FOUNTAIN OF YOUTH

## Researcher Explores Relationship Between Swimming and Aging

by Raena Alexis Latina

**W**hether you call it four score, eight decades or even 29,200 days, if you're an American female, that's your average life expectancy. Men have on average 77.56 years to fill. How will

you spend your time? Engaging in regular exercise is proving essential to a

longer, healthier life.

For the past few years, USMS, through its Endowment Fund, has sponsored or helped fund original research to characterize the physiological benefits of swimming. Much of this

research takes place at Indiana University's Councilman Center for the Science of Swimming under the direction of professor Joel Stager, a Masters swimmer. His latest research is exploring the relationship between activity and aging, leading many to ask, "Is swimming the true fountain of youth?"

As director for the Councilman Center in the School of Health, Physical Education and Recreation, on the Bloomington, Ind., campus, Stager and his research associates continue the pursuit of swimming knowledge pioneered by the center's namesake, renowned Indiana swim coach and sport physiology/sport psychology expert James "Doc" Councilman.

"There is a lot of excitement in the swimming world about the Councilman Center and the work that is being done there," says Doug Church, chair of the USMS Endowment Fund.

"Councilman was the individual who employed science as a framework to train ath-

**Raena Alexis Latina, a contributing writer based in Indianapolis, is a member of the Noblesville Adult Swim Inc.**

### Indiana University's COUNCILMAN CENTER STAFF

(left to right): Louise Turner, Brian Wright, Jonathon Stickford, Joshua White, Joel Stager, Marge Councilman, Paul Sigfussen, Andrew Cornett, Jeanne Johnston, Cleen McCracken (not shown, Tom Rushton, Louisa Raisbeck, Timmy Mickleborough, Dave Tanner).





Raena Alexis Latina

letes,” notes Stager. Most of the graduate and doctoral research students working in the center have a competitive swimming background. “We often thought some of these swimmers would want to pursue their swim life after college,” says Stager, who swims with Indiana University Masters. “To some extent, the Councilman Center gives us the opportunity to pursue our sport professionally, and we have capitalized on Doc’s vision.” A January 2005, article in *Men’s Journal* called Stager “the equivalent of a NASA engineer helping to perfect the stroke mechanics and drills used by aquanauts.”

Previous research by Stager has included analyzing full-length swimsuits at the 2000 Olympic games in Sydney, Australia. (Data showed no significant benefit for men or women wearing the high-tech suits for any stroke or distance.) Another interesting study began almost by chance: Stager noticed high school

USMS Endowment Fund Chair **DOUG CHURCH** (left) and Indiana University professor **JOEL STAGER** take time out for swimming at the 2006 Greater Indiana (GRIN) USMS State Championships held in March at Avon High School, Avon, Ind. Each had three individual golds in the meet: Church (60-64) in the 1650 free, 50 and 100 fly, and Stager (50-54) in the 100, 200 and 500 free.

swimmers weren’t recovering between workouts. Exploration found a culprit in poor eating habits, which led to research of supplements and energy drinks. “We learned that a ‘sophisticated’ product is unnecessary,” Stager notes. “Chocolate milk had all the nutritional components we needed. So, we made them drink it at practice, and backed up our speculations in the lab.”

Body suits and chocolate milk aside, the major research now before Stager and his associates focuses on correlations between regular exercise (i.e., swimming) and slowing

**A January 2005, article in *Men’s Journal* called Stager “the equivalent of a NASA engineer helping to perfect the stroke mechanics and drills used by aquanauts.”**

**After amassing data from hundreds of Masters swimmers, Stager presented a paper to the World Sports Medicine Congress with a dramatic finding: By regularly swimming 3,500 to 5,000 yards three to five times a week, swimmers—who ranged in age from 20 to 86—were significantly postponing the biological aging process.**



Courtesy of Chris Meyer, Indiana University

the aging process. A big claim? Yes, but so far, one that holds true. That's good news for fitness swimmers as well as competitive athletes in the sport.

"Every once in a while, we overlook the thing right in front of our nose," Stager says. "This is one of them." The professor and his colleagues began with the basic question, "What constitutes normal aging?"

which they answered as "a decline in health and well-being due to inactivity."

"Recent studies [of aging] are more often drawn from a diseased or declining population as the 'general' population," notes Stager. "[Researchers] have drawn conclusions about aging...but [our group] thought, wouldn't it be nice if we could find a popu-

lation that has maintained activity over time?" Stager first considered military personnel, then turned to Masters swimmers, who participate in the sport for years, if not decades.

Research began with surveys to Masters swimmers addressing the question, "How active are we, really?" The next step was to measure actual activity levels with pedometers and other instrumentation. Testing initially was confined to middle-aged Masters swimmers. Then, Stager's team turned to younger Masters swimmers as a baseline population. All Masters swimmers in these studies become, in effect, their own control group as they age.

Stager realized that studies should not compare swimmers to the general population, which tends to be more obese and hypokinetic (lacking sufficient daily activity). "You have to inspect your perspective," he notes. "Are Masters swim-

mers unique, or are we what 'normal' people should look like?" Stager contends that Masters swimmers are the measure for normal. "We are not above the baseline; we *are* the baseline, and everyone else is *below* the baseline." Today's obese-trending U.S. population is due to many factors. Stager cites rapid societal change in the last 100 years, as the general populace transitioned from a hard-labor farming and industrial lifestyle to an office-based sedentary one. A lack of physical activity, combined with the typical American high-fat diet, is leading to a prevalence of health problems including diabetes, heart disease and gall-bladder disease.

Regular exercise and a

### Proof of Youth Abounds in Masters

USMS counts among its members a number of octogenarians and ninety-somethings who are living proof of Indiana University researcher Joel Stager's contention that swimming is good for your health and keeps you young.



Shooting Stars Action Sports Photography

"I could write a book on how swimming has helped my life," says Tom Haver, 88, of San Diego Swim Masters (left). Haver swims three times a week and averages about a mile per workout, which he does all backstroke. "It's my

favorite, and it's easy," he says, with a laugh.

Haver is beginning his fifth year in Masters. Ten years ago, he was completely incapacitated with diabetic polyneuropathy. He could walk only at a slow shuffle, could not raise his foot to step over a curb, needed help to get in or out of a chair and felt intense pain in almost every joint of his body.

"Swimming has really helped me," he enthuses. "I don't think I'd be alive today if it weren't for that. There is no question I owe my present great health (I feel like my life) to swimming!"

Woodrow (Woody) W. Bowersock, 93, with Southern Pacific Coast Masters, agrees with the sentiment. "I'm one of your oldest," he jokes, "and swimming is simply one of the best programs for fitness I know of. I'm OK for all-around fitness, although my hearing is going a bit." Bowersock holds several USMS and world records. His record in the SCM 50 free—set when he was 80—stood for 11 years. "It finally fell this year," he laments.

Bowersock swims six times a week, and his wife, Lousja, swims every day. "There's no doubt about it," he says, "swimming keeps us young!"

### Staying Power

USMS has a great group of representatives in the women's upper age groups. The following women hold Top 10 times (SCY, SCM, LCM): Hilda Buel (90, Oregon); Mary Lathram (90, Potomac Valley); Maria Lenk-Zigler (90, New Mexico); Marie Kelleher (92, Virginia); Susan S. Hanson (92, Pacific); Dorothy Riordan (93, Kentucky); Elizabeth Dziadus (95, Connecticut); and Julia Dolce (96, New Jersey)!

The oldest male competitors (also with Top 10 times, SCY, SCM, LCM) include:

Norm Alish (90, Border); Robert W. Christians (90, Southern Pacific); Austin F. Newman (90, New Jersey); Ned E. Smith (90, Florida Gold Coast); Frank Tillotson (90, Florida); Dick Westerfield (90, Southern Pacific); Gene Crossett (91, Pacific Northwest); Jim S. Triolo (91, Pacific); Woody Bowersock (92, Southern Pacific); Raymond Edelhoff (92, Maryland); William H. Grant (92, Ozark); Gary Weisenthal (92, Kentucky); Jesse Coon (93, Gulf); Bill Reeder (95, Pacific); and Gerson Sobel (95, Metropolitan).

healthy diet can help prevent many of these problems. "I think the rest of the world is slowly getting it," Stager says. He also notes that "those 'crazies' in the pool...are also more active in other areas of their lives. And they're healthier for it." Stager relates a personal example of when he hiked miles of the Great Wall in China. "I was sore," he notes, "But from a cardiovascular standpoint, I was very suited to the activity. We as swimmers are more easily able to do things that other people can't."

The resiliency of swimmers became clearer to Stager when his group conducted further surveys and physical testing at the 2004 USMS SCY Nationals held in Indianapolis. During the meet, Masters swimmers voluntarily submitted to various tests designed to capture biological markers of aging. These included body mass index, blood pressure, hand grip, vertical jump, skin folds and vital capacity/lung function. The purpose of the testing was to compare biological age with chronological age.

After amassing data from hundreds of Masters swimmers, Stager presented a paper to the World Sports Medicine Congress with a dramatic finding: By regularly swimming 3,500 to 5,000 yards three to five times a week, swimmers—who ranged in age from 20 to 86—were significantly postponing the biological aging process. Typically, that process begins around age 35. But Stager found that Masters swimmers were delaying the natural decline of standard age markers such as blood pressure, muscle mass and lung function until age 70.

Stager points out that Masters swimmers, on a weekly basis, are seven to 10 times more active than minimally recommended by government agencies such as the Centers for Disease Control and Prevention. "We have kind of a 'chicken-and-egg' situation here," he

muses. "Do Masters swimmers keep swimming because they are healthy, or, are Masters swimmers healthy people who also happen to swim?" Stager leans toward the former. "As researchers, we remain skeptical to be objective, but deep down we all feel that swimming is a giant benefit to aging and aging well," he notes.

Among the advantages of regular swimming are increased speed (for some), increased muscle mass, lower cholesterol, better blood pressure values and other general markings of good health.

With continued funding support, Stager and his team would like to assess swimmers annually at the USMS national championships. The Masters population is ideal for research purposes: it encompasses ages 19 and up; all participants swim as a part of his or her fitness regime; and meet participants are typically evenly divided between males and females.

Counselman Center researchers also are building on previously collected Masters swimmer data to explore the concepts of optimal aging and maintaining muscle mass. "Muscle doesn't necessarily age, if you will," Stager states. "Studies show that older people can respond to strength training at age 80 just as well as younger people." Although swimming is not generally considered a weight-bearing activity, Stager's research team discovered that Masters swimmers have better muscle mass than the general population—regardless of age or whether the swimmer is logging 1,000 or 10,000 yards a day.

Stager notes that the smaller grants from USMS (ranging from \$5,000 to \$7,000) have made a real difference in getting the research started and collecting pilot data for larger studies in the future. "The USMS funds are a relatively small component," he notes, "but they are extremely important and allow us to continue our pursuits and continue with student projects." Responsible for securing its own grants, his university

department is always on the lookout for additional funding sources. "You almost have to complete a project to convince someone else to help fund more," Stager explains. "It's a never-ending cycle." Now Stager is looking to the National Institute on Aging to help build on the important research foundation now in place as he and his team continue to explore swimmers' fountain of youth. <<<

### **Giving Back to Swimming Through the USMS Endowment Fund**

The USMS Endowment Fund was created in 1988 to support programs and projects of benefit to Masters swimming but beyond the scope of normal USMS operations. Masters swimmers can support the fund by voluntarily adding \$1 to their annual dues. USMS members are also invited to make memorial and gift donations honoring fellow Masters swimmers.

To date, the fund has amassed nearly \$200,000. Donations and fund management are under the direction of a board of governors, which meets annually at the USMS convention to discuss pending grant applications and endowment operations. Since its inception, the Endowment Fund has awarded nearly \$25,000 to worthy projects. Two grants have gone to Indiana University professor Joel Stager for studies of exercise and fitness in an aging and fit population. One grant was awarded to Brian Morrison at Arizona State University to study the benefits of swimming for individuals suffering from nerve disorders.

The Endowment Fund has also provided funding for Masters swimmers who suffered losses in the wake of Hurricane Katrina. To date, the board of governors has approved eight grant applications by USMS members affected by the storm.

Doug Church, chair of the USMS Endowment Fund, would like to see the fund reach \$1 million over the next five years. "If each USMS member contributed just \$1," Church notes, "we would add almost \$50,000 each year." Individual donations combined with memorial gifts and interest appreciation can rapidly create a strong endowment. And, says Church, "I'm looking for the 'big donor' who can help with a one-time infusion that will bring us closer to the top!"

USMS members who would like to make contributions should send a check to "USMS Endowment Fund," c/o Doug Church, P.O. Box 10, Noblesville, IN 46061, or to the USMS national office, P.O. Box 185, Londonderry, NH 03053-0185.

---

---

---

---

**Stager notes that the smaller grants from USMS (ranging from \$5,000 to \$7,000) have made a real difference in getting the research started and collecting pilot data for larger studies in the future. "The USMS funds are a relatively small component," he notes, "but they are extremely important and allow us to continue our pursuits and continue with student projects."**